

portion of the SMA wires are in close proximity to a heat sink.” Since Gummin ‘707 provides no teaching or suggestion for this claim limitation, Gummin ‘707 does not anticipate or render obvious Applicant’s independent claim 1. Withdrawal of the 35 USC 102 (e) rejection of claim 1 under Gummin ‘707 is respectfully requested. Claims 2, 3, 14, 15, 17 and 18 all depend from allowable claim 1. Therefore, Applicant respectfully requests the withdrawal of the 35 USC 102 (e) rejection of claims 2, 3, 14, 15, 17 and 18 under Gummin ‘707 as well.

The Examiner rejected claim 20 under 35 U.S.C. 102(e) as being anticipated by U.S. 5165897 (Johnson ‘897). Claim 20 has been cancelled.

The Examiner provisionally rejected claims 1-20 under 35 USC 102 (e) as being anticipated by U.S. Patent Application Serial 08/637,713. In a phone call on May 19, 2003, the Examiner clarified that the rejection should read U.S. Patent Application Serial 09/637,713 as on page 4 of the 11/19/2002 office action. Claim 20 has been cancelled.

Independent claim 1 is distinguishable over U.S. Patent Application Serial 09/637,713 (Application ‘713) in at least that Application ‘713 provides no teaching or suggestion regarding a stroke multiplying shape memory alloy actuator “...where at least the central portion of the SMA wires are in close proximity to a heat sink” as claimed by Applicant. As such, Application ‘713 does not anticipate independent claim 1. Applicant therefore requests the withdrawal of the provisional rejection of claim 1 under 35 U.S.C. 102 (e) as anticipated by Application ‘713. Claims 2 - 19 all depend from allowable claim 1. Therefore, Applicant respectfully requests the withdrawal of the 35 USC 102 (e) provisional rejection of claims 2 - 19 under Application ‘713.

Rejections Under 35 U.S.C. 103(a)

The Examiner has rejected claims 4 and 5 under 35 U.S.C. 103(a) as being unpatentable over the combination of Gummin ‘607 and U.S. Patent 2, 518, 941 to Satchwell et al (Satchwell ‘941).

Claims 4 and 5 depend from independent claim 1. Independent claim 1 is distinguished over Gummin ‘707 above.

Satchwell ‘941 describes a regulator for a heating apparatus. Satchwell ‘941 provides no teaching or suggestion related in any way to a stroke multiplying shape memory alloy actuator “... where at least the central portion of the SMA wires are in close proximity to a heat sink” as

claimed by Applicant. As such there is no combination of Gummin '707 with Satchwell '941 that renders obvious Applicant's independent claim 1. Because claims 4 and 5 depend from allowable claim 1, Applicant respectfully requests that the withdrawal of the rejection of claims 4 and 5 under 35 U.S.C. 103 of Gummin '707 in view of Satchwell '941.

The Examiner has rejected claims 6-13 and 16-18 under 35 U.S.C. 103 (a) as being unpatentable over Gummin '607. The Examiner contends that Gummin '607 discloses all of the claimed subject matter of independent claim 1 and that it would have been obvious to one of ordinary skill in the art to modify the actuator of Gummin '607 to the claimed dimensions.

As set forth above, independent claim 1 is distinguishable over Gummin '707 in at least that Gummin '707 provides no teaching or suggestion regarding the placement of an SMA wire relative to a heat sink. As such, independent claim 1 is patentable over Gummin '707. Because claims 6-13 and 16-18 depend from allowable claim 1, Applicant respectfully requests the withdrawal of the 35 U.S.C. 103 (a) rejection of claims 6-13 and 16-18 as unpatentable over Gummin '707.

The Examiner has rejected claim 19 under 35 U.S.C. 103 (a) as being unpatentable over the combination of Gummin '607 and U.S. Patent 5,165,897 to Johnson (Johnson '897). The Examiner contends that Gummin '607 discloses all of the claimed subject matter of claim 1 but does not disclose the actuator having a switch of a power circuit.

Claim 19 depends from independent claim 1. As set forth above, independent claim 1 is distinguishable over Gummin '707 in at least that Gummin '707 provides no teaching or suggestion regarding the placement of an SMA wire relative to a heat sink.

In dependent claim 19, Applicant claims:

The actuator of claim 1 having a desired contraction limit and a power supply circuit supplying power to the actuator to cause it to contract, the power supply circuit comprising a switch that is normally closed when the actuator is contracted to less than the desired contraction limit and is opened by the actuator reaching the desired contraction limit.

As the Examiner correctly points out, Gummin '707 provides no teaching or suggestion for the additional claim limitations of claim 19.

Johnson '897 describes a programmable tactile stimulator array system and method of operation. Johnson '897 describes a control circuit 44 which provides constant current

supply for each of the actuator wires (Johnson '897, col. 6 lines 27-59 and FIG. 5). Dependent claim 19 is distinguishable from Johnson '897 in at least that Johnson '897 neither teaches nor suggests (1) a stroke-multiplying shape memory alloy (SMA) actuator comprising at least three rigid parallel elongate members, each having a long axis and being slideable relative to one another parallel to that long axis and having a desired contraction limit; (2) a power supply circuit supplying power to the actuator to cause it to contract; (3) a switch within that power supply circuit that is normally closed when the actuator is contracted to less than the desired contraction limit and is opened by the actuator reaching the desired contraction limit. As a result, no combination of Gummin '707 with Johnson '897 will render obvious Applicants dependent claim 19. Applicant therefore respectfully requests the withdrawal of the 35 U.S.C. 103 (a) rejection of dependent claim 19 as unpatentable over Gummin '707 in view of Johnson '897.

The Examiner provisionally rejected claims 1-20 under the judicially created doctrine of obviousness type double patenting as being unpatentable over the pending claims of copending U.S. Patent Application Serial 09/637,713. Claim 20 has been cancelled.

Independent claim 1 is distinguishable over U.S. Patent Application Serial 09/637,713 (Application '713) in at least that Application '713 provides no teaching or suggestion regarding a stroke multiplying shape memory alloy actuator "...where at least the central portion of the SMA wires are in close proximity to a heat sink" as claimed by Applicant. As such, Application '713 alone cannot render obvious Applicant's claimed invention. Applicant therefore requests the withdrawal of the provisional rejection of claim 1 under the judicially created doctrine of obviousness type double patenting. Claims 2 - 19 depend from allowable claim 1. Therefore, Applicant respectfully requests the withdrawal of the provisional rejection of claims 2-19 under the judicially created doctrine of obviousness type double patenting.

In view of the foregoing, it is respectfully submitted that claims 1-19 are fully distinguished over the prior art of record and therefore are in condition for allowance, the prompt issuance of which is respectfully requested.

If there are any outstanding prosecution matters that can be resolved through a telephone conference, the Examiner is requested to contact the undersigned.

The Commissioner is hereby authorized to charge any appropriate fees that may be required by this filing and to credit any overpayment to Deposit Account No. 03-3117.

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